



SEQUENCE LISTING

<110> The Regents of the University of California
Wise, Arlene

<120> Detection Of Phenols Using Engineered Bacteria

<130> S-91,714

<140> 09/520,538

<141> 2000-03-08

<160> 17

<170> PatentIn version 3.0

<210> 1

<211> 540

<212> DNA

<213> Pseudomonas sp. CF600

<400> 1

atgccgatcg agtacaagcc tgaaatccag cactccgatt tcaaggacct gaccaacctg 60

atccacttcc agagcatgga aggcaagatc tggcttgcgc aacagcgcat gctgttgctg 120

cagtcttcag cgatggccag ctttcgccgg gaaatggtca ataccctggg catcgAACGC 180

gccaagggct tgttcctgcg ccatggttac cagtcggcc tgaaggatgc cgaactggcc 240

aggaagctga gaccgaatgc cagcgaagtc ggcattttcc tcgctgggcc gcagatgcat 300

tcactcaagg gtctggtcaa ggtccgcccc accgagctcg atatcgacaa ggaatacggg 360

cgcatttatg ccgagatgga gtggatcgac tggatcgagg tggaaatctg ccagaccgac 420

ctggggcaga tgcaagaccc ggtgtgctgg actgtgctcg gctacgcctg cgcctattcc 480

tcggcggtca tggccggga aatcatcttc aaggaagtca gctgccggc ctgcggcggc 540

B |<210> 2

<211> 540

<212> DNA

<213> Pseudomonas sp. CF600

<400> 2

atgccgatca agtacaagcc tgaaatccag cactccgatt tcaaggacct gaccaacctg 60

atccacttcc agagcatgga aggcaagatc tggcttgcgc aacagcgcat gctgttgctg 120

cagtttcgg cgatggccag ctttcgccgg gaaatggtca ataccctggg catcgAACGC 180

gccaagggct tgttcctgcg ccatggttac cagtcggcc tgaaggatgc cgaactggcc 240

aggaagctga gaccgaatgc cagcgaagtc ggcattttcc tcgctgggcc gcagatgcat 300

RECEIVED

MAY 28 2002

TECH CENTER 1600/2900

tcactcaagg gtctggtcaa ggtccgcccc accgagctcg atatcgacaa ggaatacggg 360
cgcttctatg ccgagatgga gtggatcgac tggatcgagg tggaaatctg ccagaccgac 420
ctggggcaga tgcaagaccc ggtgtgctgg actgtgctcg gctacgcctg cgcctattcc 480
tcggcggtca tggccggga aatcatcttc aaggaagtca gctgccgcgg ctgcggcggc 540

<210> 3
<211> 540
<212> DNA
<213> Pseudomonas sp. CF600

<400> 3
atgccgatca agtacaagcc taaaatccag cactccgatt tcaaggacct gaccaacctg 60
atccacttcc agagcatgga aggcaagatc tggcttggcg aacaacgcatt gctgttgctg 120
cagttttcag cgatggccag ctttcgcgg gaaatggtca ataccctggg catcaacgc 180
gccaagggct tggcttgcg ccatggttac cagtcggcc tgaaggatgc cgaactggcc 240
aggaagctga gaccgaatgc cagcgaagtc ggcatgttcc tcgctggcc gcagatgcatt 300
tcactcaagg gtctggtcaa ggtccgcccc accgggctcg atatcgacaa ggaatacggg 360
cgcttctatg ccgagatgga gtggatcgac tggatcgagg tggaaatctg ccagaccgac 420
ctggggcaga tgcaagaccc ggtgtgctgg actgtgctcg gctacgcctg cgcctattcc 480
tcggcggtca tggccggga aatcatcttc aaggaagtca gctgccgcgg ctgcggcggc 540

B
Cont
<210> 4
<211> 540
<212> DNA
<213> Pseudomonas sp. CF600

<400> 4
atgccgatca agtacaagcc taaaatccgg cactccgatt tcaaggacct gaccaacctg 60
atccacttcc agagcatgga aggcaagatc tggcttggcg aacagcgcatt gctgttgctg 120
cagttttcag cgatggccag ctttcgcgg gaaatggtca ataccctggg catcaacgc 180
gccaagggct tggcttgcg ccatggttac cagtcggcc tgaaggatgc cgaactggcc 240
aggaagctga gaccgaatgc cagcgaagtc ggcatgttcc tcgctggcc gcagatgcatt 300
tcactcaagg gtctggtcaa ggtccgcccc accgagctcg atatcgacat ggaatacggg 360
cgcttctatg ccgagatgga gtggatcgac tggatcgagg tggaaatctg ccagaccgac 420
ctggggcaga tgcaagaccc ggtgtgctgg actgtgctcg gctacgcctg cgcctattcc 480
tcggcggtca tggccggga aatcatcttc aaggaagtca gctgccgcgg ctgcggcggc 540

B
Cont.

<210> 5
<211> 540
<212> DNA
<213> Pseudomonas sp. CF600

<400> 5
atgccatca agtacaagcc taaaatccag cactccgatt tcaaggacct gaccaacctg 60
atccacttcc agagcatgga aggcaagatc tggcttggcg aacagcgcac gctgttgctg 120
cagtttcag cgatggccag ctttcgcgg gaaatggtca ataccctggg cgtcgaacgc 180
accaaggct tggcctgcg ccatggttac cagtcggcc tgaaggatgc cgaactggcc 240
aggaagctga gaccgaatgc cagcgaagtc ggcacatgttcc ttgctggcc gcagatgcac 300
tcactcaagg gtctggtcaa ggtccgcccc accgagctcg atatcgacaa ggaatacggg 360
cgcttctatg ccgagatgga gtggatcgac tggatcgagg tggaaatctg ccagaccgac 420
ctggggcaga tgcaaggccc ggtgtgctgg actgtgctcg gctacgcctg cgcctattcc 480
tcggcggtca tggccggga aatcatcttc aaggaagtca gctgcccggg ctgcggcggc 540

<210> 6
<211> 540
<212> DNA
<213> Pseudomonas sp. CF600

<400> 6
atgccatca agtacaagcc taaaatccag cactccgatt tcaaggacct gaccaacctg 60
atccacttcc agagcatgga aggcaagatc tggcttggcg aacagcgcac gctgttgctg 120
cagtttcag cgatggccag ctttcgcgg gaaatggtca ataccctggg cgtcgaacgc 180
accaaggct tggcctgcg ccatggttac cagtcggcc tgaaggatgc cgaactggcc 240
aggaagctga gaccgaatgc cagcgaagtc ggcacatgttcc tcgctggcc gcagatgcac 300
tcactcaagg gtctggtcaa ggtccgcccc accgagctcg atatcgacaa ggaatacggg 360
cgcttctatg ccgagatgga gtggatcgac tggatcgagg tggaaatctg ccagaccgac 420
ctggggcaga tgcaaggccc ggtgtgctgg actgtgctcg gctacgcctg cgcctattcc 480
tcggcggtca tggccggga aatcatcttc aaggaagtca gctgcccggg ctgcggcggc 540

<210> 7
<211> 540
<212> DNA
<213> Pseudomonas sp. CF600

<400> 7
atgccgatca agtacaagcc tgaaatccag cactccgatt tcaaggacct gaccaacctg 60
atccacttcc agagcatgga aggcaagatc tggcttggcg aacagcgcat gctgttgctg 120
cagtttcag cgatgccag cttccgcgg gaaatggtca ataccctggg catcgAACGC 180
gccaagggct tgttcctgctg ccatggttac cagtccggcc tgaaggatgc cgaactggcc 240
agaagctga gaccgaatgc cagcgaagtc ggcatgttcc tcgctgggccc gcagatgc 300
tcactcaagg gtctggtcaa ggtccgcccc accgagctcg atatcgacaa ggaatacggg 360
cgcttctatg ccgagatgga gtggatcgac tggatcgagg tggaaatctg ccagaccgac 420
ccggggcaga tgcaagaccc ggtgtgctgg actgtgctcg gctacgcctg cgcctattcc 480
tcggcggtca tggccggga aatcatcttc aaggaagtca gctgcccggc ctgcggcgcc 540

<210> 8
<211> 180
<212> PRT
<213> Pseudomonas sp. CF600

<400> 8

Met Pro Ile Lys Tyr Glu Pro Glu Ile Gln His Ser Asp Phe Lys Asp
1 5 10 15

Leu Thr Asn Leu Ile His Phe Gln Ser Met Glu Gly Lys Ile Trp Leu
20 25 30

Gly Glu Gln Arg Met Leu Leu Gln Ser Ser Ala Met Ala Ser Phe
35 40 45

Arg Arg Glu Met Val Asn Thr Leu Gly Ile Glu Arg Ala Lys Gly Leu
50 55 60

Phe Leu Arg His Gly Tyr Gln Ser Gly Leu Lys Asp Ala Glu Leu Ala
65 70 75 80

Arg Lys Leu Arg Pro Asn Ala Ser Glu Val Gly Met Phe Leu Ala Gly
85 90 95

Pro Gln Met His Ser Leu Lys Gly Leu Val Lys Val Arg Pro Thr Glu
100 105 110

Leu Asp Ile Asp Lys Glu Tyr Gly Arg Phe Tyr Ala Glu Met Glu Trp
115 120 125

Ile Asp Ser Phe Glu Val Glu Ile Cys Gln Thr Asp Leu Gly Gln Met
130 135 140

Gln Asp Pro Val Cys Trp Thr Leu Leu Gly Tyr Ala Cys Ala Tyr Ser
145 150 155 160

Ser Ala Phe Met Gly Arg Glu Ile Ile Phe Lys Glu Val Ser Cys Arg
165 170 175

Gly Cys Gly Gly
180

<210> 9
<211> 180
<212> PRT
<213> Pseudomonas sp. CF600

<400> 9

Met Pro Ile Lys Tyr Lys Pro Glu Ile Gln His Ser Asp Phe Lys Asp
1 5 10 15

Leu Thr Asn Leu Ile His Phe Gln Ser Met Glu Gly Lys Ile Trp Leu
20 25 30

Gly Glu Gln Arg Met Leu Leu Leu Gln Phe Ser Ala Met Ala Ser Phe
35 40 45

Arg Arg Glu Met Val Asn Thr Leu Gly Ile Glu Arg Ala Lys Gly Leu
50 55 60

Phe Leu Arg His Gly Tyr Gln Ser Gly Leu Lys Asp Ala Glu Leu Ala
65 70 75 80

Arg Lys Leu Arg Pro Asn Ala Ser Glu Val Gly Met Phe Leu Ala Gly
85 90 95

Pro Gln Met His Ser Leu Lys Gly Leu Val Lys Val Arg Pro Thr Gly
100 105 110

Leu Asp Ile Asp Lys Glu Tyr Gly Arg Phe Tyr Ala Glu Met Glu Trp
115 120 125

Ile Asp Ser Phe Glu Val Glu Ile Cys Gln Thr Asp Leu Gly Gln Met
130 135 140

Gln Asp Pro Val Cys Trp Thr Leu Leu Gly Tyr Ala Cys Ala Tyr Ser
145 150 155 160

Ser Ala Phe Met Gly Arg Glu Ile Ile Phe Lys Glu Val Ser Cys Arg
165 170 175

Gly Cys Gly Gly
180

<210> 10
<211> 180
<212> PRT
<213> Pseudomonas sp. CF600

<400> 10

Met Pro Ile Lys Tyr Lys Pro Glu Ile Arg His Ser Asp Phe Lys Asp

B1
Cont

1 5 10 15

Leu Thr Asn Leu Ile His Phe Gln Ser Met Glu Gly Lys Ile Trp Leu
20 25 30

Gly Glu Gln Arg Met Leu Leu Leu Gln Phe Ser Ala Met Ala Ser Phe
35 40 45

Arg Arg Glu Met Val Asn Thr Leu Gly Ile Glu Arg Ala Lys Gly Leu
50 55 60

Phe Leu Arg His Gly Tyr Gln Ser Gly Leu Lys Asp Ala Glu Leu Ala
65 70 75 80

Arg Lys Leu Arg Pro Asn Ala Ser Glu Val Gly Met Phe Leu Ala Gly
85 90 95

Pro Gln Met His Ser Leu Lys Gly Leu Val Lys Val Arg Pro Thr Glu
100 105 110

Leu Asp Ile Asp Met Glu Tyr Gly Arg Phe Tyr Ala Glu Met Glu Trp
115 120 125

Ile Asp Ser Phe Glu Val Glu Ile Cys Gln Thr Asp Leu Gly Gln Met
130 135 140

Gln Asp Pro Val Cys Trp Thr Leu Leu Gly Tyr Ala Cys Ala Tyr Ser
145 150 155 160

Ser Ala Phe Met Gly Arg Glu Ile Ile Phe Lys Glu Val Ser Cys Arg
165 170 175

Gly Cys Gly Gly
180

B
Cont.
<210> 11
<211> 180
<212> PRT
<213> Pseudomonas sp. CF600

<400> 11

Met Pro Ile Lys Tyr Lys Pro Glu Ile Gln His Ser Asp Phe Lys Asp
1 5 10 15

Leu Thr Asn Leu Ile His Phe Gln Ser Met Glu Gly Lys Ile Trp Leu
20 25 30

Gly Glu Gln Arg Met Leu Leu Leu Gln Phe Ser Ala Met Ala Ser Phe
35 40 45

Arg Arg Glu Met Val Asn Thr Leu Gly Val Glu Arg Thr Lys Gly Leu
50 55 60

Phe Leu Arg His Gly Tyr Gln Ser Gly Leu Lys Asp Ala Glu Leu Ala
65 70 75 80

Arg Lys Leu Arg Pro Asn Ala Ser Glu Val Gly Met Phe Leu Ala Gly
85 90 95

Pro Gln Met His Ser Leu Lys Gly Leu Val Lys Val Arg Pro Thr Glu
100 105 110

Leu Asp Ile Asp Lys Glu Tyr Gly Arg Phe Tyr Ala Glu Met Glu Trp
115 120 125

Ile Asp Ser Phe Glu Val Glu Ile Cys Gln Thr Asp Leu Gly Gln Met
130 135 140

Gln Gly Pro Val Cys Trp Thr Leu Leu Gly Tyr Ala Cys Ala Tyr Ser
145 150 155 160

Ser Ala Phe Met Gly Arg Glu Ile Ile Phe Lys Glu Val Ser Cys Arg
165 170 175

Gly Cys Gly Gly
180

<210> 12

<211> 180

<212> PRT

<213> Pseudomonas sp. CF600

<400> 12

Met Pro Ile Lys Tyr Lys Pro Glu Ile Gln His Ser Asp Phe Lys Asp
1 5 10 15

Leu Thr Asn Leu Ile His Pro Gln Ser Met Glu Gly Lys Ile Trp Leu
20 25 30

Gly Glu Gln Arg Met Leu Leu Leu Gln Phe Ser Ala Met Ala Ser Phe
35 40 45

Arg Arg Glu Met Val Asn Thr Leu Gly Ile Glu Arg Ala Lys Gly Leu
50 55 60

Phe Leu Arg His Gly Tyr Gln Ser Gly Leu Lys Asp Ala Glu Leu Ala
65 70 75 80

Arg Lys Leu Arg Pro Asn Ala Ser Glu Val Gly Met Phe Leu Ala Gly
85 90 95

Pro Gln Met His Ser Leu Lys Gly Leu Val Lys Val Arg Pro Thr Glu
100 105 110

Leu Asp Ile Gly Arg Glu Tyr Gly Arg Phe Tyr Ala Glu Met Glu Trp
115 120 125

Ile Asp Ser Pro Glu Val Glu Ile Cys Gln Thr Asp Leu Gly Gln Met
130 135 140

Gln Asp Pro Val Cys Trp Thr Leu Leu Gly Tyr Ala Cys Ala Tyr Ser
145 150 155 160

B!
Cont.

Ser Ala Leu Met Gly Arg Glu Ile Ile His Lys Glu Val Ser Cys Arg
165 170 175

Gly Cys Gly Gly
180

<210> 13
<211> 180
<212> PRT
<213> Pseudomonas sp. CF600

<400> 13

Met Pro Ile Lys Tyr Lys Pro Glu Ile Gln His Ser Asp Phe Lys Asp
1 5 10 15

Leu Thr Asn Leu Ile His Pro Gln Ser Met Glu Gly Lys Ile Trp Leu
20 25 30

Gly Glu Gln Arg Met Leu Leu Leu Gln Phe Ser Ala Met Ala Ser Phe
35 40 45

Arg Arg Glu Met Val Asn Thr Leu Gly Ile Glu Arg Ala Lys Gly Leu
50 55 60

Phe Leu Arg His Gly Tyr Gln Ser Gly Leu Lys Asp Ala Glu Leu Ala
65 70 75 80

Arg Lys Leu Arg Pro Asn Ala Ser Glu Val Gly Met Phe Leu Ala Gly
85 90 95

Pro Gln Met His Ser Leu Lys Gly Leu Val Lys Val Arg Pro Thr Glu
100 105 110

Leu Asp Ile Asp Lys Glu Tyr Gly Arg Phe Tyr Ala Glu Met Glu Trp
115 120 125

Ile Asp Ser Phe Glu Val Glu Ile Cys Gln Thr Asp Pro Gly Gln Met
130 135 140

Gln Asp Pro Val Cys Trp Thr Leu Leu Gly Tyr Ala Cys Ala Tyr Ser
145 150 155 160

Ser Ala Phe Met Gly Arg Glu Ile Ile Phe Lys Glu Val Ser Cys Arg
165 170 175

Gly Cys Gly Gly
180

<210> 14
<211> 25
<212> DNA
<213> Pseudomonas sp. CF600

<400> 14
ccatcgctga attctgcagc aacag

<210> 15
<211> 23
<212> DNA
<213> Pseudomonas sp. CF600

<400> 15
cgcacacgga tccaaacgagt gag

23

<210> 16
<211> 19
<212> DNA
<213> Pseudomonas sp. CF600

<400> 16
ccgtcgattt atcattttgg

19

B1
cont
<210> 17
<211> 20
<212> DNA
<213> Pseudomonas sp. CF600

<400> 17
tgtccatcat attgcgcacg

20